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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/921,308	08/03/2001	Takuma Yanagisawa	041514-5134	5637

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EXAMINER

VUONG, BACH Q

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 06/28/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/921,308

Applicant(s)

YANAGISAWA ET AL.

Examiner

Bach Q Vuong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 16-22 is/are rejected.
- 7) ☒ Claim(s) 12-15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishibashi (US 5,523,989).

Ishibashi, according to Figs. 1-6, shows an optical pickup apparatus comprising all features of the claimed invention as interpreted below:

Regarding claim 1, see Figs. 1-6 which show an optical pickup apparatus for illuminating a recording surface of a recording medium with a light beam to record and/or reproduce information, comprising: a photodetector (see photodetector in Figs. 1, 2, 5 and 6) for receiving a diffracted light reflected from the recording medium; and a tilt detector (see circuit 20 in Fig. 1 or 120 in Figs. 3) for detecting a tilt amount of the recording medium on the basis of a light intensity within an interference region of a 0th-order diffraction light and at least one diffraction light other than the 0th-order diffraction light of the reflected light received by the photodetector.

Regarding claim 2, see Figs. 2B and 2C which show an optical pickup apparatus wherein the tilt detector detects a tilt amount of the recording medium on a basis of a light

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intensity difference in between an outer peripheral area and an inner peripheral area of the interference region.

Regarding claim 3, see Figs. 1 and 2 which show an optical pickup apparatus wherein the tilt detector detects a tilt amount of the recording medium on the basis of a light intensity within at least of the interference regions (see Figs. 2A-2C).

Regarding claim 4, see Figs. 1-6 which show an optical pickup apparatus wherein the photodetector has three photo-detecting elements arranged in a tangential direction of the recording medium, a radial tilt signal S (see Trad in Fig. 5) representing a radial tilt amount being expressed as $S = L1 - L2 + L3$ provided that reception signals by the photo-detecting elements (see elements 5a1-5a2, 5b1-5b2, 6a and 6b in Fig. 5 for details) are given by $L1$, $L2$ and $L3$ in order with respect of the tangential direction.

Regarding claim 5, see Figs. 1 and 2 which show an optical pickup apparatus wherein at least one diffraction light includes one of a $+1^{\text{st}}$ order diffraction light and a -1^{st} order diffraction light.

Regarding claim 16, see the rejection applied to claim 1.

Regarding claim 17, see the rejection applied to claim 2.

Regarding claim 18, see the rejection applied to claim 3.

Regarding claim 19, see the rejection applied to claim 5.

Claims 1, 2, 5-11 and 16-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Ma et al. (US 6,507,544).

Ma et al., according to Figs. 1-39, shows an optical pickup apparatus comprising all features of the claimed invention as interpreted below:

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Regarding claim 1, see Figs. 1-6 which show an optical pickup apparatus for illuminating a recording surface of a recording medium with a light beam to record and/or reproduce information, comprising: a photodetector (see photodetector 9) for receiving a diffracted light reflected from the recording medium; and a tilt detector (see circuits 30 and 50 in Figs. 5 and 6B) for detecting a tilt amount of the recording medium on the basis of a light intensity within an interference region of a 0th-order diffraction light and at least one diffraction light other than the 0th-order diffraction light of the reflected light received by the photodetector.

Regarding claim 2, see Figs. 5, 6B and 8 which show an optical pickup apparatus wherein the tilt detector (see column 10, lines 13-50) detects a tilt amount of the recording medium on a basis of a light intensity difference in between an outer peripheral area and an inner peripheral area of the interference region.

Regarding claim 5, see Figs. 4A and 4B which show an optical pickup apparatus wherein at least one diffraction light includes one of a +1st order diffraction light and a -1st order diffraction light.

Regarding claim 6, see Figs. 4A and 5-8 which show an optical pickup apparatus wherein the recording medium is a rotating recording medium and the tilt detector (circuits 30, 50 and 70) detects an amount of radial tilt (see Radial direction in Fig. 4A) on the basis of a light intensity within a diffraction light interference region in a radial direction of the recording medium.

Regarding claim 7, see Figs. 1-9 and 19 which show an optical pickup apparatus wherein the photodetector (see photodetector 30) includes means for receiving the reflection light to generate a radial push-pull signal as pull-push signal in the radial

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direction, and the tilt detector (see circuits 30, 50 and 70) includes correcting means for calculating a corrected radial tilt amount by subtracting a value of the radial push-pull signal multiplied by a predetermined coefficient (see predetermined gain factor k) from a tilt signal intensity representing the radial tilt amount.

Regarding claim 8, see Figs. 1-9 which show an optical pickup apparatus wherein the photodetector (see photodetector 30) includes means for receiving the reflection light to generate, with respect to the radial direction of the recording medium, at least two tangential push-pull signals (see Tangential direction and circuit 30 in Fig. 8) as push-pull signals in a tangential direction of the recording medium, and the tilt detector (see circuits 30, 50 and 70 in Fig. 8) includes correcting means for correcting a tilt signal representing the radial tilt amount such that amplitudes of at least two tangential push-pull signals are made substantially equal.

Regarding claim 9, see Figs. 1-9 which show an optical pickup apparatus wherein the correcting means (see circuits 30, 150 and 159 in Fig. 9) includes amplifying means for amplifying each of the tangential push-pull signals and an adjuster to adjust a gain of the amplifying means such that the amplitudes of the tangential push-pull signals are made substantially equal.

Regarding claim 10, see Figs. 1-4 which show an optical pickup apparatus wherein the recording medium (see disk 10) comprises a recording region formed by land and groove portions.

Regarding claim 11, see Figs. 1-9 which show an optical pickup apparatus wherein the photodetector (see photodetector 1000 in Figs. 23-27) is a six-element detector having six photo-detecting elements arranged in the regions obtained by two-division in a radial

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direction of the recording medium (see radial direction) and a further three-division in a tangential direction of the recording medium (see tangential direction).

Regarding claim 16, see the rejection applied to claim 1.

Regarding claim 17, see the rejection applied to claim 2.

Regarding claim 18, see the rejection applied to claim 3.

Regarding claim 19, see the rejection applied to claim 5.

Regarding claim 20, see the rejection applied to claim 6.

Regarding claim 21, see the rejection applied to claim 7.

Regarding claim 22, see the rejection applied to claim 8.

Allowable Subject Matter

Claims 12-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 12-15 are allowable over the prior art of record because all cited references, considered as the closest prior art and viewed in combination or individual, fails to suggest or fairly teach an optical pickup apparatus including a combination of all features as particularly recited in each of claims 12-15.

Cited References

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references relate to an optical pickup apparatus having functions of detecting disk tilt from diffraction pattern.

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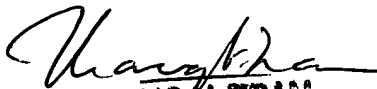
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bach Q Vuong whose telephone number is (703) 305-7355.

The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BV
June 21, 2004


THANG V. TRAN
PRIMARY EXAMINER